

What is claimed is

1. A gas remover for expelling gases from a load tap changer having an ullage, the gas remover comprising:

a source of substantially nonreactive gas at a pressure greater than ambient atmospheric pressure;

a feed line configured to introduce the nonreactive gas into an ullage in the load tap changer; and

an orifice configured to establish an outflow rate of nonreactive gas and entrained vapor phase contaminants if present from the load tap changer ullage to the atmosphere.

2. The gas remover of claim 1, wherein the gas remover further comprises a nitrogen generator configured to extract nitrogen from the atmosphere for use as the substantially nonreactive gas.

3. The gas remover of claim 2, wherein the gas remover further comprises an inlet air filtration system to filter air entering said nitrogen generator.

4. The gas remover of claim 2, wherein the gas remover further comprises an air compressor to furnish compressed air to said nitrogen generator.

5. The gas remover of claim 2, wherein the gas remover further comprises a gas separating membrane within said nitrogen generator, wherein said

separating membrane is capable of removing gases including at least one of ozone, carbon compounds, sulfur dioxide, and hydrogen sulfide from the outflow stream from said nitrogen generator to limit each contaminant to a maximum of 1 part per million of the mass of the outflow gas.

6. The gas remover of claim 2, wherein the gas remover further comprises a gas separating membrane within said nitrogen generator, wherein said separating membrane is capable of removing gases including at least one of oxygen and water vapor from the outflow stream from said nitrogen generator to limit each contaminant to a levels specified by the American Society of Testing and Materials (ASTM) for Type I insulating gas.

7. The gas remover of claim 2, wherein the gas remover further comprises a storage reservoir within said nitrogen generator configured to store nitrogen during an operational period for said nitrogen generator.

8. The gas remover of claim 2, wherein the gas remover further comprises a pressure regulator in the feed line from said nitrogen generator to the load tap changer ullage to lower the nitrogen pressure from a first pressure level at which the nitrogen is generated and stored to a second pressure level at which it is introduced into the load tap changer ullage.

9. The gas remover of claim 1, wherein the gas remover further comprises a gas flow path that establishes an effective output venting rate from the load tap changer ullage to a standard atmosphere.

10. The gas remover of claim 1, wherein the venting rate is dependent on total gas pressure within the ullage.
11. The gas remover of claim 1, wherein the gas remover further comprises a gas flow path establishing an output venting rate from the load tap changer ullage to the atmosphere surrounding the load tap changer of approximately 2 cubic feet of nitrogen per day.
12. The gas remover of claim 2, wherein the gas remover further comprises an alternative pressure regulation facility in the feed line from said nitrogen generator to the load tap changer ullage, which alternative pressure regulation facility provides an increased flow rate from the nitrogen section to the load tap changer ullage during a venting cycle.
13. The gas remover of claim 2, wherein the gas remover further comprises an alternative pressure regulation facility in the feed line from said nitrogen generator to the load tap changer ullage, which alternative pressure regulation facility provides an increased flow rate from the load tap changer ullage to the atmosphere during a venting cycle.
14. The gas remover of claim 1, wherein the gas remover further comprises a control mechanism to permit manual selection of said alternative pressure regulation facility.

15. The gas remover of claim 1, wherein the gas remover further comprises an automatic control mechanism to permit pressure-regulated engagement of said alternative pressure regulation facility.
16. The gas remover of claim 1, wherein the gas remover further comprises an orifice check valve between said orifice and the atmosphere.
17. The gas remover of claim 1, wherein the gas remover further comprises:
 - a down-pointing vent pipe terminating the path between said orifice and the atmosphere;
 - a buoyant float caged within said vent pipe; and
 - a seat in said vent pipe against which said buoyant float can bear to provide a seal when said buoyant float is lifted by liquids of higher specific gravity than the specific gravity of said float.
18. The gas remover of claim 1, wherein the gas remover further comprises a fill gas other than nitrogen.
19. The gas remover of claim 1, wherein the gas remover further comprises a reporting system to send load tap changer condition information to a distal information handling location.
20. A gas remover for expelling gases from a load tap changer, comprising:

means for extracting nitrogen gas from the atmosphere;

means for urging said extracted nitrogen gas into an ullage in a load tap changer; and

means for establishing a substantially continuous outflow of nitrogen from the ullage to the atmosphere along with entrained vapor phase contaminants, if present.

21. The gas remover of claim 20, further comprising:

means for filtering atmospheric air introduced into said nitrogen generator; and

means for compressing atmospheric air introduced into said nitrogen generator to a pressure level sufficient to extract nitrogen therefrom.

22. The gas remover of claim 20, further comprising means for separating gaseous nitrogen from the compressed atmospheric air introduced into said nitrogen generator.

23. The gas remover of claim 20, further comprising:

means for applying power to said compressing means;

means for controlling application of power to said compressing means;

and

means for establishing pressure thresholds at which power directed to said compressing means may be applied and removed.

24. A process for expelling gases from a load tap changer, comprising the

steps of:

extracting nitrogen gas from the atmosphere;
urging the extracted nitrogen gas into an ullage in a load tap changer; and
establishing a substantially continuous outflow of nitrogen from the
ullage to the atmosphere along with entrained vapor phase contaminants if
present.

25. The gas removal process of claim 24, further comprising the steps of:
filtering atmospheric air in advance of extracting nitrogen therefrom; and
compressing atmospheric air to a pressure level sufficient to extract
nitrogen therefrom.

26. The gas removal process of claim 24, further comprising the step of
separating gaseous nitrogen from the compressed atmospheric air.